

UNIT 5: Genetics
DAYSHEET 53: Genetics Vocabulary Practice

Biology I

Name _____

Date: _____

Purpose: To review basic genetics vocabulary

Task: As you read, **highlight** or underline the definitions of the words in bold. Answer the questions in the margin to demonstrate your understanding of genetics vocabulary.

Identify if the following are **phenotypes** or **genotypes**:

Brown hair _____

ATGCCG _____

Bb _____

Gregor Mendel was an Austrian Monk who is known as “the father of genetics.” Genetics is the study of **heredity**, or the way that **traits** (our physical characteristics) are passed from one generation to the next. Mendel discovered the basic principles of genetics by studying pea plants.

Mendel first examined the physical appearance of his pea plants, or their **phenotype** (the way they look). He noticed that for every trait there seemed to be two possible versions. For example, peas could either be green or yellow; round or wrinkled; pinched or puffed pods.



Mendel decided that these different traits must be determined by different version of genes, which he called **alleles**. Mendel abbreviated these alleles using letters – B, b, G, g, etc. A pair of alleles together makes up an organisms **genotype** (Bb, GG, gg, etc.)

Identify if the following alleles are **dominant** or **recessive**:

B _____

k _____

i _____

In one of Mendel’s first experiments, he mated green peas with yellow peas. He expected the offspring to come out greenish yellow – but they didn’t. All of the offspring were green! Mendel decided that this meant the green allele was stronger, so he called it the **dominant** allele. The dominant allele will show up in an organism’s phenotype whenever it is present. We use a capital letter for the dominant allele.

The allele the seemed to disappear Mendel called the **recessive** allele. This allele gets masked (hidden) by the dominant allele. The recessive allele is weaker, and will only show up in an organism’s phenotype if there is no dominant allele present. We use a lowercase letter for the recessive allele.

Identify if the following are genotypes are **homozygous** or **heterozygous**:

BB _____

Bb _____

Bb _____

An organism can have two of the same allele in its genotype. This is referred to as **homozygous**. This means they got the same version of a gene from their mom and dad. An organism could also have two different alleles. This is referred to as **heterozygous**, and means that mom and dad gave him/her different versions of the gene. In this case, only the dominant allele or version will show up in the phenotype.

Activity 1: Vocab Master!

Learning genetics is like learning a new language! Complete the Vocabulary Master with the following genetics vocabulary words:

- Phenotype
- Genotype
- Allele
- Dominant
- Recessive
- Heterozygous (hybrid)
- Homozygous (purebred / true breeding)

If you finish early, look back at your Cornell Notes from last class and find other new words that you can add to your Vocabulary Master sheet for extra credit points!

Activity 2: Time to Practice!

Identify the following alleles as dominant (**D**) or recessive (**r**):

R _____ j _____ l _____ M _____ P _____

Identify the following genotypes as homozygous (**HO**) or heterozygous (**HE**):

RR _____ jj _____ Ll _____ Mm _____ PP _____

Identify the following genotypes as homozygous dominant (**HO D.**) or homozygous recessive (**HO r.**)

RR _____ jj _____ hh _____ YY _____ zz _____

Identify the following genotypes as homozygous dominant (**HO D.**), homozygous recessive (**HO r.**) or heterozygous (**HE**).

Gg _____ UU _____ li _____ oo _____ QQ _____

Homozygous genotypes are either homozygous dominant or homozygous recessive. Explain why there is no such thing as heterozygous dominant or heterozygous recessive.

Identify the following as phenotypes (**P**) or genotypes (**G**):

Blue eyes _____

DNA sequence ATCGGATA _____

Dimples _____

KK _____

Pair of alleles _____

Type A Blood _____

Write the phenotypes that would correspond to the following genotypes in the space provided

Gray fur is dominant to white fur

FF _____

Ff _____

ff _____

Large beak size is dominant to small beak size

BB _____

Bb _____

bb _____

Long antennas are recessive to short antennas

AA _____

Aa _____

aa _____

Write all of the possible genotypes for the following phenotypes. If no letter is specified, you can use whatever letter you want to represent the alleles.

Free earlobes (E) is dominant to attached earlobes (e)

_____ or _____ Free earlobes

_____ attached earlobes

Curly hair (H) is dominant to straight hair (h)

_____ or _____ Curly hair

_____ straight hair

Summarize: Fill in the blanks with the words below.

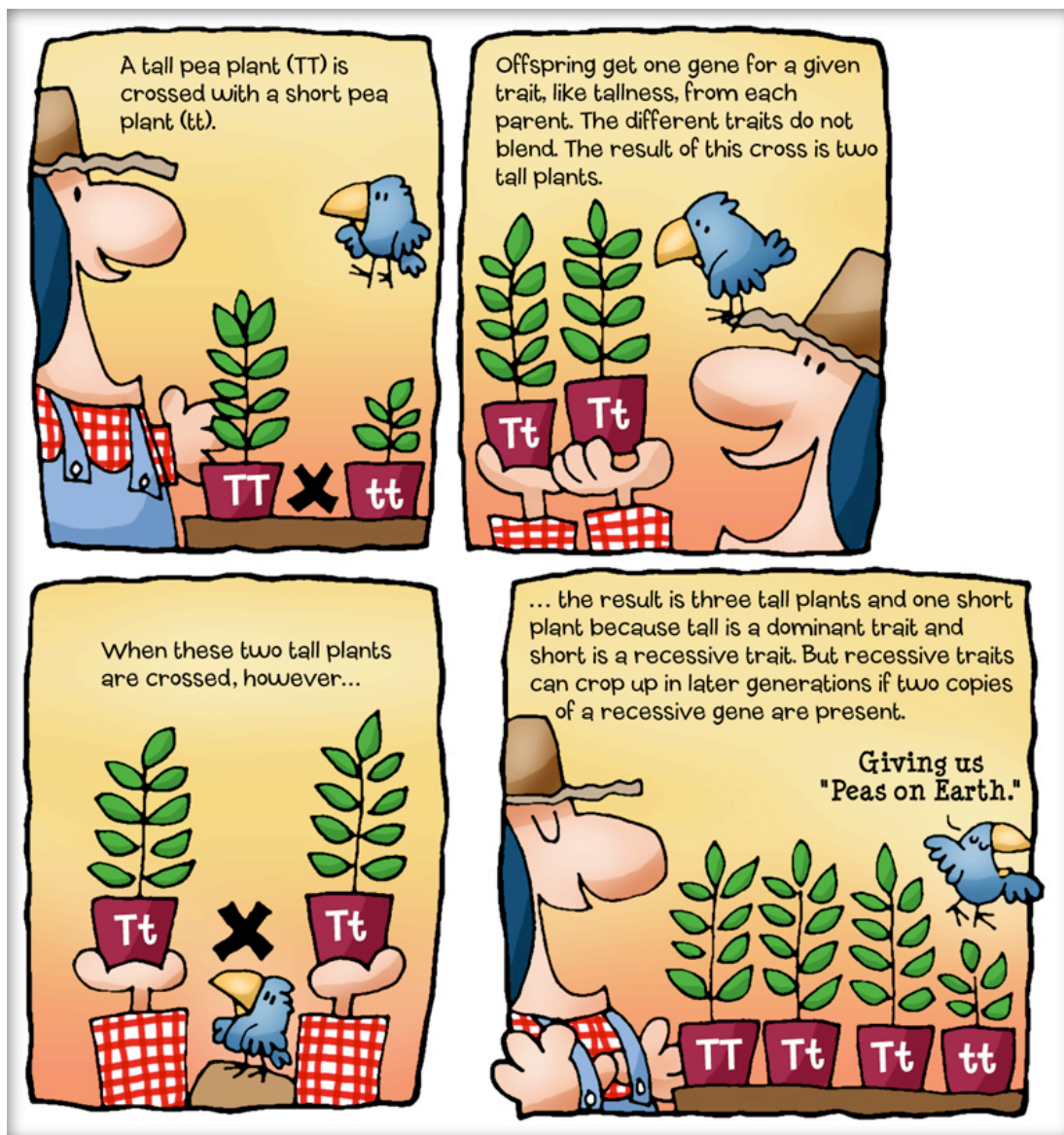
Homozygous dominant Heterozygous Homozygous Recessive One Two

There are always _____ possible genotypes that produce the dominant phenotype. To have the dominant phenotype, you can be either _____ or _____ . There is only _____ possible genotype that produces the recessive phenotype. To have the recessive phenotype, you must be _____ .

Activity 3: Flashcards

Directions: Make flashcards of your genetics vocabulary. You should put the vocabulary word on one side of the card, and the definition (and maybe an example) on the back of the card. When you finish, study your flashcards using the strategies below:

1. Look at the side with the definition and see if you can name the word
2. Look at the side with the word and see if you can name the definition
3. Find a partner to quiz you!



Name: _____

Date: _____

A mutation is a **mistake or mess-up in the DNA**. There are lots of different things that can cause mutations and there are lots of different types of mutations. Some mutations are inheritable (can be passed from parents to offspring) and some mutations are not inheritable (cannot be passed from parents to offspring).

1. **IDENTIFY** which of the following things can cause genetic mutations by circling them:

Exposure to radiation

Breaking a bone

Exposure to chemicals

Eating food high in cholesterol

Overdosing on drugs

2. **IDENTIFY** which of the following mutations are inheritable (can be passed on) by circling them:

A mutation in a body cell

A mutation in a sex cell

A nitrogen base substitution in a body cell

A nitrogen base substitution in a sperm cell

Radiation damage to a skin cell

Radiation damage to a female gamete

Random breaking in stomach cell's DNA

Damage to lung cells caused by smoking

3. There are 4 main types of mutations in chromosomes. **MATCH** the pictures below with the type of mutation they represent

a. **Deletion** – when a part of a chromosome gets deleted

b. **Inversion** – when the chromosome gets out of order

c. **Duplication** – when a part of a chromosome gets repeated

d. **Translocation** – when a piece of a chromosome breaks off and attaches to another chromosome

